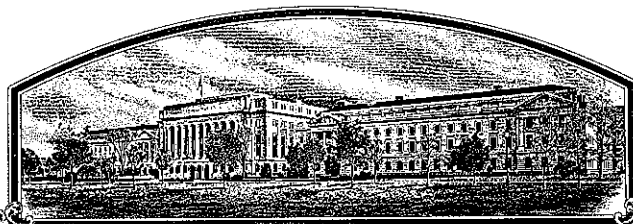


No.



9100185

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Pioneer Hi-Bred International, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOVBEAN

'9551'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 31st day of August in the year of our Lord one thousand nine hundred and ninety-four.

Attest:

*Kenneth H. Evans*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Mike Egan*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Pioneer Hi-Bred International, Inc.</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.	3. VARIETY NAME <b>9551</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>700 Capital Square 400 Locust Street Des Moines, IA 50309</b>		5. PHONE (Include area code) <b>515-270-3414</b>	<b>FOR OFFICIAL USE ONLY</b> VPVO NUMBER <b>9100185</b> F I L I N G Date <b>May 15, 1991</b> Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$ <b>2,150.-</b> Date <b>May 13, 1991</b> R E C E I V E D Certificate Fee: \$ <b>250.00</b> Date <b>August 1, 1994</b>
6. GENUS AND SPECIES NAME <b>Glycine max</b>	7. FAMILY NAME (Botanical) <b>Leguminosae</b>		
8. CROP KIND NAME (Common Name) <b>Soybean</b>	9. DATE OF DETERMINATION <b>July, 1985</b>		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Iowa</b>		12. DATE OF INCORPORATION <b>1926</b>	

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

<b>James E. Miller, Ph.D. 7301 NW 62nd Ave., P.O. Box 85 Johnston, IA 50131-0085</b>	<b>John Grace JUS 5 Sept. 1994 Mary Helen Mitchell (copy) 700 Capital Square, 400 Locust Street Des Moines, IA 50309</b>
--	--

PHONE (Include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

a. ☒ Exhibit A, Origin and Breeding History of the Variety.

b. ☒ Exhibit B, Novelty Statement.

c. ☒ Exhibit C, Objective Description of Variety.

d. ☐ Exhibit D, Additional Description of Variety.

e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office **05/15/91**

g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)

☐ YES (If "YES," answer items 16 and 17 below) ☒ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: \_\_\_\_\_.)

☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?

☐ YES (If "YES," give names of countries and dates)

☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] <b>James E. Miller</b>	CAPACITY OR TITLE <b>Worldwide Soybean Research Director</b>	DATE <b>5/9/91</b>
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

## EXHIBIT A

## ORIGIN AND BREEDING HISTORY

9551

Summer 1980 Original cross was made at Union City, TN.  
Cross number was PX4075  
Parentage = J74-45/1095C42  
J74-45 is a full sister to Bedford  
1095C42 = Essex/D66-5566  
D66-5566 = D49-2491\*4/Hawkeye

Winter 1980 F1 plants grown in greenhouse at St. Joseph, IL.

Summer 1981 Single F2 plants were screened on Soybean Cyst Nematode race 4 soil at Union City, TN greenhouse.  
Resistant plants were transplanted to the field to produce the F3 generation.

Winter 1981-82 F3 advanced to F5 by 2 cycles of modified single seed descent in Jamaica.

Summer 1982 F5 bulks of PX4075 grown at Union City and single plants selected.

Summer 1983 F5-derived plants rows of PX4075 were grown at Union City. Poor stands caused PX4075 to be advanced to the F6 generation by modified single seed descent.

Winter 1983-84 F6 advanced to the F7 by one cycle of modified single seed descent in Hawaii.

Summer 1984 F7 bulks of PX4075 grown at Union City and single plants selected.

Summer 1985 F7-derived plant rows of PX4075 were grown at Union City. Row UN5-15343 was selected and composited.

Summer 1986 PX4075-17 was entered in UNC512 as entry 07 and planted as 2 replications at 2 locations.

Summer 1987-90 Subsequent wide area testing over these 4 years has shown 9551 to be uniform and stable for all plant traits from generation to generation with no evidence of variants.

5.0 acres of 9551 (breeder's seed) were grown in Tennessee during 1989. 100 acres of parent seed (foundation seed equivalent) were grown in Arkansas during 1990.

## EXHIBIT B

## NOVELTY STATEMENT

9551

9551 is most similar to variety 9581. Both varieties have resistance to physiologic races 3 and 4 (new race 14) of the Soybean Cyst Nematode (Heterodera glycines Ichinohe). However, 9551 is 3 days earlier in maturity than is 9581 (Table 1).

~~EXHIBIT E~~ replaced JH 15 Sept. 1994  
STATEMENT OF THE BASIS OF  
APPLICANT'S OWNERSHIP

Variety 9551 was brought to market solely by Pioneer Hi-Bred International, Inc., for which it solicits a certificate of protection.

U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION  
 PLANT VARIETY PROTECTION OFFICE  
 BELTSVILLE, MARYLAND 20705

EXHIBIT C  
 (Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
 SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.	TEMPORARY DESIGNATION	VARIETY NAME 9551
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 700 Capital Square 400 Locust Street Des Moines, IA 50309		FOR OFFICIAL USE ONLY PVPO NUMBER 9100185

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)

2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 3

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 11 = Determinate ('Gnome'; 'Braxton')  
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

2 = Semi-Determinate ('Will')

## ★ 18. MATURITY GROUP:

☐ 0 ☐ 81 = 000  
9 = VI2 = 00  
10 = VII3 = 0  
11 = VIII4 = I  
12 = IX5 = II  
13 = X

6 = III

7 = IV

8 = V

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★ ☐ 2Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)★ ☐ 0Bacterial Blight (*Pseudomonas glycinea*)★ ☐ 2Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★ ☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)★ ☐ 0

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

Race 4

☐ 0

Race 5

☐

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microsphaera diffusa*)★ ☐ 0Brown Stem Rot (*Cephalosporium gregatum*)☐ 1Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

5

## 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☒ Race 1 ☐ 1 Race 2 ☒ Race 3 ☒ Race 4 ☒ Race 5 ☐ 0 Race 6 ☒ Race 7
- ☒ Race 8 ☒ Race 9 ☐ 1 Other (Specify) Race 19, 12, 13, 17, 19, 20, 25

## VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 2 Race 3 ☐ 2 Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 1 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 1 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 0 Iron Chlorosis on Calcareous Soil
- ☐ 2 Other (Specify) Metribuzin Herbicide

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9581	Seed Coat Luster	9581
Leaf Shape	9581	Seed Size	9581
Leaf Color	9581	Seed Shape	9581
Leaf Size	9581	Seedling Pigmentation	9581

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
9551 Submitted	134	2.0	91			43.7	20.7	15	
9581 Name of Similar Variety	137	2.2	97			42.8	20.3	14	

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



Table 1. Variety 9551 (X1) vs '9581' (X2) for maturity in days.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented separately for 1987, 1988, 1989 and 1990 with overall statistics following.

REP	X1	X2	X1-X2	(X1-X2) <sup>2</sup>
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1987

1	133.7	139.7	-6	36
2	117.3	124	-6.7	44.89

SD**2=	0.1225
SD=	0.35
D/SD=	-18.143 *
DF=	1

n= 2

sum	251	263.7	-12.7	80.89
ave	125.5	131.9	-6.35	

ave 9551 =	125.5
ave 9581 =	131.85

1988

3	150.3	153.7	-3.4	11.56
4	128	132.3	-4.3	18.49
5	138.5	140	-1.5	2.25
6	150.3	155	-4.7	22.09
7	146.7	150.7	-4	16
8	149.7	155.3	-5.6	31.36
9	127.7	132.7	-5	25
10	133.3	138	-4.7	22.09
11	129.7	135.7	-6	36

SD**2=	0.19586
SD=	0.44257
D/SD=	-9.8416 **
DF=	8

n= 9

sum	1254	1293	-39.2	184.84
ave	139.4	143.7	-4.36	

ave 9551 =	139.356
ave 9581 =	143.711

1989

12	148.7	151	-2.3	5.29
13	125.7	126.7	-1	1
14	123	125	-2	4
15	148.7	151	-2.3	5.29
16	147.7	149.3	-1.6	2.56
17	122	125.3	-3.3	10.89
18	138.3	138.7	-0.4	0.16

SD**2=	0.12898
SD=	0.35914
D/SD=	-5.1313 **
DF=	6

n= 7

sum	954.1	967	-12.9	29.19
ave	136.3	138.1	-1.84	

ave 9551 =	136.3
ave 9581 =	138.143

1990

19	119.7	120	-0.3	0.09
20	142	143.7	-1.7	2.89
21	128	132	-4	16
22	133	134.3	-1.3	1.69
23	114.5	117.5	-3	9
24	141.7	145.3	-3.6	12.96
25	128	132.7	-4.7	22.09
26	133.3	134.3	-1	1
27	115.3	117.3	-2	4
28	118.5	119.5	-1	1
29	137.5	143	-5.5	30.25
30	142	145	-3	9
31	141.7	145.7	-4	16

sum	1695	1730	-35.1	125.97
ave	130.4	133.1	-2.7	

SD**2=	0.2
SD=	0.44721
D/SD=	-6.0374 **
DF=	12

n= 13

ave 9551 = 130.4

ave 9581 = 133.1

OVERALL

1	133.7	139.7	-6	36
2	117.3	124	-6.7	44.89
3	150.3	153.7	-3.4	11.56
4	128	132.3	-4.3	18.49
5	138.5	140	-1.5	2.25
6	150.3	155	-4.7	22.09
7	146.7	150.7	-4	16
8	149.7	155.3	-5.6	31.36
9	127.7	132.7	-5	25
10	133.3	138	-4.7	22.09
11	129.7	135.7	-6	36
12	148.7	151	-2.3	5.29
13	125.7	126.7	-1	1
14	123	125	-2	4
15	148.7	151	-2.3	5.29
16	147.7	149.3	-1.6	2.56
17	122	125.3	-3.3	10.89
18	138.3	138.7	-0.4	0.16
19	119.7	120	-0.3	0.09
20	142	143.7	-1.7	2.89
21	128	132	-4	16
22	133	134.3	-1.3	1.69
23	114.5	117.5	-3	9
24	141.7	145.3	-3.6	12.96
25	128	132.7	-4.7	22.09
26	133.3	134.3	-1	1
27	115.3	117.3	-2	4
28	118.5	119.5	-1	1
29	137.5	143	-5.5	30.25
30	142	145	-3	9
31	141.7	145.7	-4	16

sum	4155	4254	-99.9	420.89
ave	134	137.2	-3.22	

SD**2=	0.1064
SD=	0.32619
D/SD=	-9.8793 **
DF=	30

n= 31

ave 9551 = 134.016

ave 9581 = 137.239

Change to Exhibit E of PVP Application 9100185, '9551' (September, 1994).

'9551' JH 30 November 1994

Variety '9362' was originated and developed by plant breeders from whom, by agreement, Pioneer Hi-Bred International has obtained exclusive rights to protect and market variety '9362'. No rights to such invention, discovery, or development are retained by the plant breeders or by any other party.